

PATENT CLAIMS

1. A set for the manufacture of a hearing aid which by way of casting a shape body (7) in a specific auditory canal is adapted to this auditory canal, wherein the hearing aid in a preliminary condition comprises a casting cavity (5), and in the adapted, definitive condition comprises the cast shape body (7), said set comprising the following constituents:

a central casting space element (1) with an inner and outer ring (1.2 and 1.3) and a flexible-tube-like and expandable membrane (1.1) which extends between the two rings and which radially delimits the casting cavity (5) to the outside,

an outer casting element (2) with a casting opening (2.1), said element being matched to the outer ring (1.2) and closing off the casting cavity to the outside,

an at least partly bendable channel element (3) with a first end region (3.2) and with a second end region (3.3), wherein the first end region (3.2) is firmly connected or releasably connectable to the outer casting space element (2), and the second end region (3.3) is matched to the inner ring (1.3) of the central casting space element (1) in a manner such that by way of this second end region (3.3), the opening of the inner ring (1.3) may be essentially closed and the axial movability of the inner ring (1.3) may be limited;

an electronics module (4 or 4') with a loudspeaker (4.4), serving an acoustic function and/or another module serving a different function,

wherein the inner side of the outer casting space element (2) is adapted to the corresponding inner side of the electronics module (4 or 4') and/or the other module, in a manner such that the position of the fixed or releasable connection between the outer casting space element (2) and the first end region (3.2) of the channel element (3) corresponds to the position of the output side of the loudspeaker (4.4) or of an at least partly bendable loudspeaker continuation (4.5) of the electronics module (4 or 4'), said continuation carrying the loudspeaker (4.4), and/or corresponds to the position of an equally shaped part of the other module.

2. A set according to claim 1, characterised in that the channel element (3) in its first end region (3.2) is firmly connected to the outer casting space element (2) and that the second end region (3.3) of the channel element (3) is formed as a compressible thickening which may be moved through the inner ring (1.3) of the central casting space element (1).

3. A set according to claim 1, characterised in that the channel element (3) in its first end region (3.2) is releasably connectable to the outer casting space element (2) and that the second end region (3.3) of the channel element (3) is designed as a thickening which may not move through the inner ring (1.3) of the central casting space element (1).
4. A set according to one of the claims 1 to 3, characterised in that the outer ring (1.2) of the central casting space element (1) on the one hand and the outer casting space element (2) or the electronics module (4 or 4') and/or the other module on the other hand comprise connection means cooperating with one another, for creating a releasable connection between the central casting space element (1) on the one hand and the outer casting space element (2) or electronics module (4 or 4') and/or another module on the other hand.
5. A set according to one of the claims 1 to 4, characterised in that at least one of the releasable connections between the channel element (3) and the outer casting space element (2), between the outer ring (1.2) and the electronics module (4, 4') and/or another module or between the channel element (3) and the inner ring (1.3) of the central casting space element (1) is a releasable snap connection.
6. A set according to claim 4 or 5, characterised in that the releasable connection between the outer ring (1.2) of the central casting space element (1) and the outer casting space element (2) is air-permeable and is impermeable to a casting mass.
7. A set according to one of the claims 3 to 6, characterised in that a likewise bendable vent channel part (3.4) for keeping free a vent channel (9) is arranged on the second end region (3.3) of the channel element (3) which is releasably connectable to the outer casting space element (2).
8. A set according to one of the claims 1 to 7, characterised in that the central casting space element (1) for the loudspeaker channel (8), or for the loudspeaker channel (8) and the vent channel (9) comprises a flexible tube (1.4, 1.5) which is fastened on the inner ring (1.3).
9. A set according to one of the claims 1 to 8, characterised in that the central casting space element (1) consists of several different materials.
10. A set according to claim 9, characterised in that the parts of the central casting element (1) which consist of different materials are cast onto one another by way of injection moulding.
11. A set according to claim 9 or 10, characterised in that the outer and the inner ring (1.2 and 1.3) consists of polyamide, liquid crystal polymer, polyetherether-ketone or a silicone

material and that the membrane (1.1), or the membrane (1.1) and the flexible tubes (1.4, 1.5) consist of a silicone material or a thermoplastic elastomer.

12. A method for manufacturing a hearing aid from a set according to one of the claims 1 to 11, said method comprising the following steps:

creating the hearing aid in its preliminary condition in that the outer casting space element (2) is placed onto or into the outer ring (1.2) of the central casting space element (1) and the channel element (3) essentially closes the opening of the inner ring (1.3) of the central casting element (1), limits the movability of the inner ring (1.3) and is connected to the outer casting space element (2);

positioning the hearing aid in its preliminary condition in an auditory canal;

filling the casting cavity (5) with a casting mass and letting the casting mass cure;

removing the hearing aid from the auditory channel;

removing the outer casting space element (2) and the channel element (3);

positioning the electronics module (4, 4') or another module at the location of the outer casting space element (2)

13. A hearing aid which at least partly is to be worn in an auditory canal, said hearing aid comprising an individual part and an electronics module (4, 4') or another module, which is releasably connected to the individual part, wherein the individual part comprises a cast shape body (7) adapted to the auditory canal, with a membrane (1.1) extending over its peripheral surface from an outer ring (1.2) to an inner ring (1.3), and a loudspeaker channel (8) bent adapted to the auditory canal, and wherein a loudspeaker (4.4) is arranged in the electronics module (4, 4') in a manner such that an output side of the loudspeaker which is integrated in the electronics module (4,4') or is arranged on a bendable loudspeaker continuation (4.5), or an equally shaped part of the other module is positioned in the loudspeaker channel (8) of the individual part when the individual part is connected to the electronics module (4, 4') or the other module.

14. A hearing aid according to claim 13, characterised in that the connection between the individual part and the electronics part (4, 4') or the other module is a releasable snap connection, wherein a connection means is arranged on the outer ring (2.1) and a connection means cooperating with it is arranged on the electronics module (4,4') or another module.

15. A hearing aid according to one of the claims 13 or 14, characterised in that a flexible tube (1.4) surrounding the loudspeaker channel (8) is fastened on the inner ring (1.3).

16. A hearing aid according to one of the claims 13 to 15, characterised in that it comprises a vent channel (9) and that a flexible tube (1.5) surrounding the vent channel (1.5) is fastened on the inner ring (1.3).

17. A hearing aid according to one of the claims 13 to 16, characterised in that the outer ring (1.2), the inner ring (1.3), the membrane (1.1) and the flexible tubes (1.4, 1.5) consist of two or three different materials.

18. A hearing aid according to claim 17, characterised in that the outer and the inner ring (1.2 and 1.3) consist of polyamide, liquid crystal polymer, polyether etherketon or a silicone material, and that the membrane (1.1), or the membrane (1.1) and the flexible tubes (1.4, 1.5) consist of a silicone material or of a thermoplastic elastomer.

19. A hearing aid according to claim 18, characterised in that the shape body (7) is cast of a cold-cross-linking silicone material which connects to the silicone material of the membrane (1.1) and of the flexible tubes (1.4, 1.5).